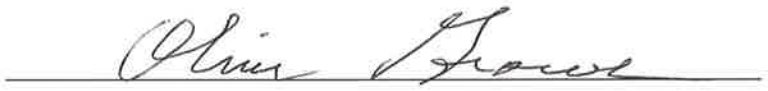
Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Updating the Intercarriage Compensation Regime to	)	WC Docket No. 18-155
Eliminate Access Arbitrage	)	

EXPERT REPORT OF OLIVER GRAWE, PH.D.

IN RESPONSE TO THE NOTICE OF PROPOSED RULEMAKING ENTITLED "UPDATING THE INTECARRIER COMPENSATION REGIME TO ELIMINATE ACCESS ARBITRAGE"

JULY 20, 2018



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I. Introduction

A. Professional Experience

I have worked on telecommunications matters including the proposed AT&T/T-Mobile merger and on matters involving two-sided markets including credit card networks in the U.S. and Australia. I taught at Emory University's Goizueta Business School and the United States Naval Academy where I was the Naval Supply Command Professor and later the Admiral William Crowe Professor of Economics. I have also served as a staff economist and Deputy Assistant Director in the Federal Trade Commission's Bureau of Economics where I earned the Commission's award for excellence in economics. I also served as Economic Advisor to the FTC's Director of the Bureau of Competition. I participated in a Post-Office research project sponsored by the Office of Management and Budget and done at the U.S. Department of Justice's Economic Policy Office. I currently work at Berkeley Research Group where I am a Managing Director.

B. Assignment

I have been asked by Innovista Law PLLC to review and assess the Notice of Proposed Rulemaking (WC Docket No. 18-155) ("NPRM") released by the Federal Communications Commission ("FCC") related to access-stimulation.[1] In particular, I understand that the proposal put forward by the FCC seeks to "eliminate financial incentives to engage in access stimulation" by giving local exchange carriers ("LECs") that engage in access stimulation two choices about how to connect to interexchange carriers ("IXCs").[2] These choices are (1) "an access-stimulating LEC can choose to be financially responsible for calls delivered to its network;" or (2) "an access-stimulating LEC can choose to accept direct connections either from the IXC or an intermediate access provider of the IXC's choice."[3]

This report also discusses the claims made by the FCC in its 2011 order regarding access stimulation regarding the likely consequence of its Order on, (a) lower telecommunications rates, (b) increased broadband investment, and (c) increased minute of use.

C. Background

The FCC previously addressed intercarrier compensation issues, including access stimulation, in a 2011 order.[4] In addition to the 2011 Order, changes to or clarification of the rules-of-the-game

[1] See FCC. Notice of Proposed Rulemaking, In the Matter of Updating the Intercarrier Compensation Regime to Eliminate Access Arbitrage, WC Docket No. 18-155, June 5, 2018 ("NPRM").
[2] NPRM at ¶ 2-3.
[3] NPRM at ¶ 3.
[4] See FCC, In the Matter of Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; and Universal Service Reform—Mobility Fund, Dockets Nos. WC 10-90, GN 09-51, WC 07-135, WC 05-337, CC 01-92, CC 96-

regarding inter-carrier compensation also include, as the FCC noted in the Clarifying Order, "orders resolving complaints concerning access stimulation under preexisting rules" filed and resolved prior to 2011.[5] The FCC claimed that its proposed reforms would "bring numerous and significant benefits to consumers" including "cost savings to consumers."[6] In addition, the FCC claimed:

> [O]ur reforms will promote the nation's transition to IP networks, creating long-term benefits for consumers, businesses, and the nation. The convergence of data, voice, video, and text in networks based upon IP supports the Internet as an open platform for innovation, investment, job creation, economic growth, competition, and free expression.[7]

One purported reason for why these reforms would have such effects is the FCC's claim that "[a]ccess stimulation imposes undue costs on consumers, inefficiently diverting capital away from more productive uses such as broadband deployment."[8] In addition, the FCC claimed that "[w]hen carriers pay more access charges as a result of access stimulation schemes, the amount of capital available to invest in broadband deployment and other network investments that would benefit consumers is substantially reduced."[9]

The FCC reports evidence that access stimulation or "arbitrage" continues to occur as "companies engaged in access stimulation use a variety of tactics to prevent interexchange carriers from avoiding their excessive charges.'"[10] Hence, the FCC's proposals are intended to

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45, WC 03-109, and WT 10-208, November 18, 2011 (hereafter "USF/ICC"). See also, FCC, Order Clarifying Aspects of USF/ICC Transformation Order, In the Matter of Connect America Fund, et al. WC Docket No. 10-90, GN Docket No. 09-51, WC Docket No. 07-135, WC Docket No. 05-337, CC Docket No. 01-92, CC Docket No. 96-45, WC Docket No. 03-109, and WT Docket No. 10-208, February 3, 2012 (hereafter "Clarifying Order"). In this Comment, I have sought wherever possible to cite publicly available material and to provide where possible URL links to facilitate review.

[5] Clarifying Order, op cit., ¶25 ("We clarify that the USF/ICC Transformation Order complements these previous decisions, and nothing in the USF/ICC Transformation Order should be construed as overturning or superceding these previous Commission decisions.")

[6] USF/ICC, ¶654. The FCC has justified stricter regulation of termination fees notwithstanding the deregulatory goal of the 1996 Telecommunications Act in two ways. First, the FCC was persuaded by IXCs'complaints that the size of access fees paid to CLECs harmed telecommunications consumers. See, USF/ICC ¶¶649, 654, 663-664. The USF/ICC was not the FCC's only rule-making on access stimulation as noted in the Clarification. The FCC projected benefits from regulating termination fees would amount to $1.5 billion per year. See, USF/ICC ¶654 ("Indeed, we estimate, based on conservative assumptions, that once our ICC reform is complete, mobile and wireline phone consumers stand to gain benefits worth over $1.5 billion dollars per year." Emphasis added). Note, the benefits from the proposed reform were expected to flow to consumers, not the providers or their shareholders, of telecommunications services. Second, the FCC was opposed to the supply of "free" conference calling services as a distortion of the market. See, USF/ICC ¶665 ("Access stimulation also harm competition by giving companies that offer a 'free' calling service a competitive advantage over companies that charge their customers for the service. … As a result, the services offered by 'free' conferencing providers that leverage arbitrage opportunities put companies that recover the cost of services from their customers at a distinct competitive disadvantage.")

[7] USF/ICC, ¶655.

[8] USF/ICC, ¶663

[9] USF/ICC, ¶664

[10] NPRM at ¶ 7.

solve what it describes as "the persistent, costly, and inefficient access stimulation arbitrage scheme" that it believes is still ongoing.[11]

D. Summary of Conclusions

I have reached the following preliminary conclusions:

- To my knowledge, the FCC has provided no analysis showing that any of the predictions it made in 2011 have come to pass. In particular, the FCC has not provided any analysis prior to issuing the current NPRM that there has been any impact on consumer benefits, business benefits, investment, job creation, economic growth, competition, or free expression.

    - To my knowledge no analysis has been done by the FCC showing that long-distance telecommunications rates did fall specifically as a result of the regulated change in termination fees. In fact, public Bureau of Labor Statistics (BLS) producer price (PPI) data for wired telecommunications carriers public switched toll service[12] (long distance) shows higher rates in 2017 than in 2011 for the post-Order months July-December. BLS PPI bundled access data also shows higher rates in 2017 than in 2012 (base period December 2011).[13]

    - As a specific example of the FCC's failure to analyze the accuracy of the claims it previously made, to my knowledge it has provided no analysis of any relationship between access-stimulation fees and broadband investment. Furthermore, the FCC has been unwilling to credit investments made by small rural and Indian tribal telephone companies with income earned through access stimulation that are then spent expanding broadband or other services their customers value.[14]

- To my knowledge, the FCC has not presented any evidence that it has considered potential, unintended consequences of its proposed reforms. By way of example, the FCC has claimed that access fees being used to support "free" conference calling interfere with market processes.[15] Thus, the FCC's proposed reforms would possibly prevent any telecommunications-related firm from offering a "free" service as a way of generating business as part of a bundle of goods or services if anyone, anywhere buys the "free" service on a standalone basis.[16]

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[11] NPRM at ¶ 8.

[12] BLS, PPI Industry data for wired telecommunications carriers – Public switched toll service, not seasonally adjusted, BLS series PCU5173115173112.

[13] BLS, PPI Industry data for Wired telecommunications carriers – Bundled access services, not seasonally adjusted, BLS series PCU5173115173117. Bundled access PPI declined briefly from August to December 2012 by 0.4-0.5% (baseline 100 to 99.5-99.6) before returning to or slightly above the baseline. BLS bundled access PPIs do not exist prior to December 2011.

[14] See, e.g., USF/ICC, ¶666.

[15] USF/ICC ¶665.

[16] Examples of "free goods" includes the Linux operating system, Google's search engine, and Dropbox's online storage services. A number of these products compete with products provided at a cost and make use of

II. There Is No Economic Evidence that the Proposed Reforms Are Necessary

Despite claiming that its prior reforms would result in lower prices to consumers, as well as in increased broadband investment, the FCC has not, to my knowledge, presented any economic evidence that meaningful relationships exist in the post 2011 era between access-stimulation fees and either consumer prices or broadband investment. In fact, available economic evidence would appear to suggest that no such relationships exist. In the absence of such analysis, it is not clear why further reforms would be expected to have the FCC's intended results.

To have a rational basis for further changes, it would seem desirable (if not obligatory) for the FCC to have independently analyzed the consequences of the 2011 regulatory changes for several reasons. First, such an analysis would provide a solid empirical benchmark for the starting point of any further changes in the post 2011 era. Second, such an analysis would provide empirical evidence on how accurate prior predictions were of the relationship(s) between access fees and a variety of other fees. For example, without such analysis, the following questions remain unanswered:

- Do changes in access fees have an impact on IXC rates or not?
- Do changes in termination fees have an impact on (a) per minute local rates or (b) fixed recurring charges or equipment discounts that may affect subscriptions?
- How do reduced termination fees affect (a) CLEC investments in services including broadband, (b) IXC investments in broadband or other services?
- Are the consequences of changes in rates by so-called access-stimulating CLECs on variables of interest to the FCC even measurable?
- Does a reduction in termination fee income generate an offsetting increase in demand/need for USF subsidies or not?

With proper analysis, it would be possible to provide reasonable answers to these questions. Policy changes, of the sort proposed here, should be based on sound empirical work making use, in this case, of the FCC's new Economics Division.

A. The FCC itself has recognized that firms engaged in access-stimulation generally do not possess market power

In 2016, the FCC "grant[ed] a petition from the United States Telecom Association seeking a declaratory ruling that incumbent local exchange carriers (LECs) are non-dominant in their provision of interstate switched access services."[17] As the FCC explained, it "regulates carriers

telecommunications—especially broadband—services. *See* Chris Anderson, Free: The Future of a Radical Price, 2009; Jonathan Barnett, The Host's Dilemma: Strategic Forfeiture in Platform Markets for Informational Goods, 124 Harvard L. R. 2011: 1861; and Chris Anderson, Free! Why $0.00 Is the Future of Business, Wired Mag., February 25, 2008 (archive.wired.com/techbiz/it/magazine/16-03/ff_free); Frank Linde, Pricing Information Goods, J. of Product & Brand Management, 18/5 2009: 379-384.

[17] FCC, Declaratory Ruling, Second Report and Order, and Order on Reconsideration, In the Matter of Technology Transitions; USTelecom Petition for Declaratory Ruling that Incumbent Local Exchange Carriers are Non-Dominant in the Provision of Switched Access Services, Dockets GN 13-5 and WC 13-3, and Policies and Rules Governing

as dominant only to the extent they possess market power" and "[f]or the reasons stated below, we declare incumbent LECs non-dominant in their provision of interstate switched access services."[18] According to the Commission, "[i]n today's marketplace, incumbent LECs cannot control prices for, and thus lack market power over, interstate switched access."[19]

The FCC expressly attributes the contrary view that LECs did have market power to the pre-2011 USF/ICC Order world that allegedly produced "hidden subsidies" under a "system of regulated per-minute access charges [that] had become 'riddled with inefficiencies and opportunities for wasteful arbitrage'".[20] In its petition to the FCC, however, USTelecom claimed "that adoption of [the bill-and-keep] reforms has rendered concerns about incumbent LEC

Retirement of Copper Loops by Incumbent Local Exchange Carriers, Docket RM-11358, July 15, 2016 ("In the Matter of Technology Transitions"), ¶4. As discussed below, New Jersey's PUC in 2017 also concluded that LECs lack market power—entry is easy and competition across telecommunications providers is robust—for reasons unrelated to the 2011 FCC Order. See State of New Jersey Board of Public Utilities, In the Matter of the Board Investigation Regarding the Reclassification of Incumbent Local Exchange Carrier (ILEC) Services as Competitive—Phase II, Docket No. TX11090570, 2017. Other states have also deregulated at the ILEC level. For example, the state's largest ILEC, AT&T Southwest, has been entirely deregulated by the Texas PUC. According to the 2017 Report on Competition, the PUC notes:

> "Finally, Texas has seen the continued deregulation of additional markets served by ILECs, including the total deregulation of the largest incumbent in Texas, AT&T Texas. Because the Legislature has required that there be at least two other competitors in an incumbent's exchange before it can be deregulated, AT&T Texas's complete deregulation can be interpreted as evidence of widespread competition in Texas. AT&T Texas's request for a COA to replace its CCN was approved in 2014."

Report to the 85th Texas Legislature, Scope of Competition in Telecommunications Markets of Texas, Public Utility Commission of Texas, January 2017 ("Texas PUC"), p. 35. Smaller ILEC, however, remain under various forms of regulation. Other, larger ILEC, are transitioning to deregulation, including Frontier (f/k/a Verizon), Sprint-Centel (CenturyLink), Colorado Valley Telephone Cooperative, Guadalupe Valley Telephone Cooperative, and Valley Telephone Cooperative. Texas PUC, pp. 32, 45-46. In total 437 local "markets" have been reregulated beginning in 2005. Texas PUC, p. 31. Wisconsin's PUC "no longer regulates the retail offerings of telecommunications providers. Companies may choose to provide, or not provide, retail tariffs on an informational basis." Wisconsin PSC (http://apps.psc.wi.gov/vs2010/tariffs/default.aspx). As of January 1, 2008, the Wisconsin PUC had removed all price regulations from all of AT&T's residential access lines in its larger exchanges (Milwaukee and Madison). Telephone cooperatives are not regulated in Wisconsin unless they petition to be resulted by the PSC. Wisconsin Legislative Council Information Memorandum: Regulation of Telecommunications Services ((http://legis.wisconsin.gov/lc/publications/im/IM2011_07.pdf). Precisely which LEC have market power, given rate deregulation at the state level and the FCC's 2016 non-dominance finding, requires more than assertion. Without market power at the LEC level it is not obvious how LEC fees can be excessive or abusive. On the one hand, the FCC claims ILECs lack market power because the 2011 Order worked. On the other hand, state PUCs have been deregulating LECs based solely on market competition and, as New Jersey found, easy entry.

[18] FCC, In the Matter of Technology Transitions, ¶19, see also ¶21. The FCC did not reach a determination as to LEC's "dominance" in the provision of special access services (i.e. business data services), nor did it reach a finding of non-dominance regarding centralized equal access (CEA) providers "because such carriers do not provide service to end users." FCC, In the Matter of Technology Transition, Footnote 43.

[19] FCC, In the Matter of Technology Transition, ¶22 (emphasis added).

[20] FCC, In the Matter of Technology Transition, ¶24.

market power over interstate switched access moot."[21] The FCC agreed with this view.[22] As discussed below, if LECs lack market power because they compete for business or because existing rate-regulation has been effective, as the Commission appears to have concluded in 2016, or a combination of both, then it is not clear why additional regulation is required.[23]

B. The FCC has not presented any evidence linking lower access-stimulation fees to reduced consumer prices

In contrast to the analysis that the FCC's new Economics Division could have undertaken, the FCC's NPRM on these issues does not provide any analysis of how the pre-2011, 2011, and post-2011 clarification-orders have actually affected consumers or suppliers.[24] As presented in **Exhibit 1**, price indices reported by the BLS for various telecommunications elements, including bundled access services, internet access services, cellular wireless and residential and business wired services at least raises the possibility that telecommunications rates and access service prices are not tightly linked. For example, Internet access prices did not change over the period encompassed by this data while cellular and wireless prices declined by about 23%. Bundled wired access service prices were relatively unchanged (up 5.1%) as were business wired service

[21] The Board of Directors of USTelecom includes the Executive Vice President of Regulatory Affairs of AT&T, the Senior Vice President and Treasurer of CenturyLink, the Executive Vice President of Frontier Communications, the Executive Vice President of Verizon, the President and CEO of Windstream Communications, the Vice Chair of the Board and CEO of Consolidated Communications, Inc., the President and CEO of Shenandoah Telecommunications, and the Senior Vice President of Government Affairs for Oracle, among others. USTelecom, Board of Directors (https://www.ustelecom.org/who-we-are/leadership/board-directors). Presumably the major IXCs were aware of USTelecom's position in 2016 regarding a lack of market power by LECs.

[22] FCC, In the Matter of Technology Transition, ¶ 25-26.

[23] In 2016 the FCC appears to have grounded its "lack of dominance" conclusion on the success of its 2011 Order. The current NPRM appears to an economist as questioning the success of the Order and, so, as once consequence possibly eliminating the basis for the FCC's 2016 market dominance opinion.

[24] A study undertaken Vermont's Department of Public Service estimated that the USF/ICC's total impact on Vermont's telecommunications providers would be to reduce their available revenue by $11.6 million or -38% of the affected revenue pool. This reduction is about 6% of total 2012 telecommunications regulated revenue. Rolka Loube Saltzer Associates, Revenue Effects of FCC Reforms to Intercarrier Compensation and Federal Universal Service Mechanisms, Part 1 of 3 of a Report to the Vermont Department of Public Service, February 14, 2013 (http://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/Legislative_Reports/High%20Cost%20Study%20-%20FCC%20Impact%20Report%20-%20Final%20Version.pdf). Hence, it seems at least plausible that the FCC's Order has generally reduced funds available to LECs and as the FCC evidently believed in 2011, reduced revenue translates into less private investment in e.g. broadband. The ILEC carriers adversely affected include FairPoint Communications (d/b/a Telephone Operating Company of Vermont and FairPoint Vermont), Franklin Telephone Co., Shoreham Telephone Co. (OTT Communications), Topsham Telephone Co., Waitsfield-Fayston Telephone Co., Inc., Vermont Telephone Co. (VTEL), Ludlow Telephone Co. (TDS Telecom), Northfield Telephone Co. (TDS Telecom), and Perkinsville Telephone Co. (TDS Telecom). FairPoint obtained the Vermont lines from Verizon New England in 2007, along with lines in New Hampshire and Maine, for $2.7 billion (including $1 billion in FairPoint stock). FairPoint declared bankruptcy in October 2009 and FairPoint's service deteriorated so that Vermont's Department of Public Service started proceedings to revoke its operating certificate. Vermont Department of Public Services, Vermont Telecommunications Plan, December 2014, p. 17 (http://www.nbrc.gov/uploads/Application%20Materials/VT%20Telecom%20Plan%202014.pdf). Being a "call-terminating" or "call-originating" ILEC or CLEC is no assurance of financial viability. See also, R. Dean Foreman, A logistic analysis of bankruptcy within the US local telecommunications industry, J. of Econ. & Bus., March-April 2003: 135-166; Paul Starr, The Great Telecom Implosion, The American Prospect, September 8, 2002 (https://www.princeton.edu/~starr/articles/articles02/Starr-TelecomImplosion-9-02.htm).

prices. However, residential wired service prices rose by 24%. The FCC has also failed to consider the fact that the cost of telecommunications equipment has declined over time.[25] Data points such as these suggest that reductions in access-stimulation fees may have no effect on the prices ultimately paid by consumers. These data are presented in **Exhibit 1**.

California's Public Utilities Commission (PUC) reports Residential Basic Service Rates for AT&T, Frontier/Verizon, Frontier CTC-CA, and Consolidated. The data shows increasing rates from 2010-2012. Rates increase more slowly for Frontier and Consolidated after 2012 but continuing rising at about the same (absolute) rate for AT&T, from $21.00 in 2012 to $27.00 in 2018 for flat-rate service and from $15.37 to $24.25 for measured service. These data are presented in **Exhibit 2**.

The FCC reports telecommunications rates in its Urban Survey. AT&T Services reports several rates, including the Unlimited All Distance recurring rate. This recurring rate has risen from 2014 when it is reported at $43/month to $59/month in 2018.[26]

In a parallel setting of mobile telephony and mobile telephony termination rates (MTRs), Frontier Economics on behalf of Vodaphone analyzed the impact of falling mobile termination rates in Europe.[27] Frontier found:

- "No link to usage and prices. Although usage has increased and prices have fallen, there is no evidence that these trends have been related to the acceleration in the reduction in mobile termination rates. Despite a tripling in the rate of termination rate cuts since the introduction of the Commission's recommendations, we have not found evidence at the EU level of an acceleration in the rate of mobile price reductions or the rate of usage increase.'
- "No evidence of a link between MTR reductions and the market position of smaller players.
- "Potential risk of lower take-up and investment. It is too early to draw conclusions on the impact of accelerated mobile termination rate cuts on penetration rates and investment levels—there is a risk that they could have a detrimental impact."

This analysis of the relationship between rates, usage and termination fees is inconsistent with the FCC's prediction that lower termination fees lead to lower rates and increased output. This

[25] For one example, see BLS, PPI Commodity Data, Series WPU11760112, Carrier line equipment and external modems (base December 2000); and Series WPU11760141, Wireline voice and data network equipment (base December 1985).

[26] The FCC evidently did not produce an Urban Survey between 2007 and 2014. The FCC's online archive ends with 2006-2007. The Urban Survey also reports the Universal Service Fee, which varies from state-to-state and is frequently reported as $0.00 for the AT&T Unlimited All Distance Circuit rate and is in addition to the recurring rate set by AT&T.

[27] Frontier Economics, The impact of recent cuts in mobile termination rates across Europe: A Report Prepared for Vodaphone Group, May 2012 (https://www.vodafone.com/content/dam/group/policy/downloads/mtr_impact_of_ec_recommendation.pdf).

negative result provides support for the need to do careful empirical analysis of the consequences of the 2011 Order on rates, usage, and investment.

Furthermore, even if long-distance rates fell, higher fees might arise elsewhere. This has been recognized in telecommunications markets as the so-called "waterbed" effect (discussed more below). One result of this "waterbed" effect may be that offsetting a decline in the long-distance component of the call are higher local service fees for both calling and receiving parties. At least some empirical evidence seems consistent with this possibility. For example, the BLS PPI for "Wired telecommunications carriers – Local telephone service, except private lines," has risen substantially since 2011, increasing from 106.2 in June 2011 to 130.7 in June 2017, to an estimated 143.2 in June of 2018.[28]

In 2011, the FCC predicted lower long-distance rates as a result of the USF/ICC Order.[29] But this prediction at the time was based only on "economic theory", which may have been all the FCC had at the time to rely on. As discussed below, the "economic theory" the FCC relied upon in 2011 was possibly too simplistic. Economic theory can also show that lowering access fees can lead to no effect on total telephone costs or that it can raise them. What would be predicted to occur depends upon some critical assumptions including, especially, how competitive the components of a telephone call are and the shape of demand for telephone services.[30] But in

[28] BLS PPI industry data for Wired telecommunications carriers-Local telephone service, except private lines, not seasonally adjusted, PCU5173115173111.

[29] USF/ICC, ¶748. The FCC said:

> "Economic theory suggests that carriers will reduce consumers' effective price of calling, through reduced charges and/or improved service quality. We predict that reduced quality-adjusted prices will lead to substantial savings on calls made, and to increased calling."

The prediction made subsequent analysis of its accuracy more complicated by alleging that either (a) price will drop holding quality fixed or (b) price will remain unchanged but quality will improve so that on some "quality-adjusted basis" price has come down. This, of course, depends critically on how "quality" is defined. It also depends on whether consumers actually value the claimed "quality" improvement. If consumers do not put a value on the quality-improvement, then consumers have not been made better off. For example, in 2016 AT&T discontinued the following services, ostensibly due to "low demand": (a) collect calling, (b) person-to-person calling, (c) billed to third-party calling, (d) busy line verification, (e) busy line interruption, and (f) international directory assistance. AT&T, Letter to Ms. Marlene H. Dortch, Secretary, FCC, from Terri L. Hoskins, Esq., Section 63.71 Application of AT&T, January 7, 2016. If demand was truly lacking for these services, then AT&T's decision to discontinue them presumably did not adversely affect customers' view of AT&T's "quality" just as a decision to add these services would not have increased "quality."

[30] Suppose IXCs have some market power—they are not perfect competitors—but LECs compete for business as was recently determined to be true in New Jersey by its PUC in a deregulation case brought by Verizon (discussed below). LECs use the revenue they generate to cover costs and some of the revenue comes from termination fees. Regulation pushed this fee to zero so revenue, but not costs, fall. As the fee falls for all LECs they are all required to raise other fees to offset their revenue loss (or reduce other costly benefits they provide). Now suppose demand for IXC service is linear and IXC marginal cost is constant (including a per-minute-of-use termination fee). IXCs will lower their price by exactly half the reduction in the termination fee. As a result, the total cost of IXC long-distance plus local exchange service goes up, not down. IXC profit increases as well. If IXC demand curvature more convex or concave than the linear case, pass through will differ from ½ and, in some cases, could exceed 1. But this simply shows that there is no "economic theory" that properly predicts the impact on telephone costs. The theory only predicts subject to assumptions that may or may not describe the world well. On pass-through, see E. Glen Weyl & Michal Fabinger, Pass-Through as an Economic Tool: Principles of Incidence under Imperfect Competition, J. of Polit. Economy, June 2013: 528-583.

2017 economic theory is no longer the only available guide, even if that were true in 2011. The FCC's regulatory policy changes have been in effect and a careful analysis of real data should allow us to know whether changes in termination fees have resulted in lower costs of telephony to customers than would have been the case without the changes. This, of course, assumes that the total termination fees as a fraction of long-distance or total call revenue was material enough to be separable from the noise in the data.

C. The FCC has not presented any analysis that minutes of use ("MOU") have increased as a result of the 2011 Order

The 2011 Order also promised an increase in usage. Data reported by the FCC for Tier 1 and Non-Tier 1 carriers does not support an increase since 2011. The largest carrier, Pacific Bell, lost nearly as many minutes as all non-Tier 1 carriers combined. Combined, Tier 1 and Non-Tier 1 carrier minutes dropped by almost 60% since March 2011. Even so, 22 carriers continued to clear more than 1 billion minutes annually and 8 cleared more than 2 billion. In 2011, when the Order was issued, 48 carriers cleared more than 1 billion minutes and 31 cleared more than 2 billion. The decline in MOUs certainly suggests substantial excess capacity to handle calls—Tier 1 and Non-Tier 1 carriers alike would appear to need some stimulation. These data are reported in **Exhibit 3**.

Finally, in 2011 the FCC credited claims that access stimulation resulted in 2 billion wireless and wireline long distance minutes in 2010.[31] According to the NECA's March 2011 Supplemental Report of Access Minutes, in 2010 total access minutes were 240,018,756,468 for Tier 1 and Non-Tier 1 carriers.[32] In 2010, 31 carriers each reported more than 2 billion access minutes.[33] In 2011, the access stimulation MOUs, wireline and wireless amounted to less than 1% of the access MOUs reported by NECA. In light of the decline in minutes, and as discussed in more detail below, there is no evidence that access-stimulation presents a significant problem within the telecommunications industry.

D. Access-stimulation fees are small when compared to the size of the telecommunications industry

Even if it could be shown that relationships exist among lower access-stimulation fees and lower consumer prices and even if it could be shown that current access-stimulation fees are above

[31] USF/ICC, ¶664.

[32] "March 2011 Supplemental Report of Access Minutes," National Exchange Carrier Association, Inc. (www.fcc.gov/general/carrier-common-line-access-minutes-use).

[33] Some of the reporting carriers are affiliates. The 2010 list of 31 includes Verizon Massachusetts, Southern New England Telephone, Verizon New York, Verizon New Jersey, Verizon Pennsylvania, Verizon Maryland, Verizon Virginia, Verizon Florida, Embarq Florida, Southern Bell-Florida, Southern Bell-Georgia, Southern Bell-North Carolina, Southern Bell-South Carolina, South Central Bell-Alabama, South Central Bell-Louisiana, South Central Bell-Mississippi, South Central Bell-Tennessee, Ohio Bell Telephone Company, Michigan Bell Telephone Company, Indiana Bell Telephone Company, Wisconsin Bell Telephone Company, Illinois Bell Telephone Company, Qwest Corp-Minnesota, Southwestern Bell-Missouri, Southwestern Bell-Texas, Qwest Corp-Arizona, Qwest Corp-Colorado, Qwest Corp-Washington, Verizon (GTE)-California, Pacific Bell, and Puerto Rico Telephone Company.

some desirable level, public information indicates that the total dollar value of "access-stimulation" termination rates in and prior to 2011 is small compared to the size of the telecommunications industry. Connectiv Solutions provided wireless estimates for 2010 and 2011 that is less than $0.18 billion per year based on data from AT&T.[34] The FCC found, based on estimates apparently provided by interested parties, that access stimulation fees amounted to $0.330 to $0.440 billion per year as of 2011.[35] Based on the USF/ICC regulated reduction in access termination fees it is likely that an analysis conducted today would show that total access termination fees by access-stimulating CLECs to be much lower than estimated 7 years ago.

To square the Verizon claim that access stimulation costs carriers $330 to $440 million per year with an estimate of 2 billion MOU means that in 2010 the cost-per minute was between $0.165 and $0.22. Obtaining current data on average termination fees and minutes-of-use related to access stimulation will (a) provide information relevant to the FCC's 2016 non-dominance finding and (b) help provide a basis for evaluating the need for further regulatory change.

To provide some context for this analysis, in 2015, AT&T paid $10.2 billion in dividends and had free-cash flow of $15.9 billion. In 2017, AT&T paid out $12.0 billion in dividends and had free-cash flow of $17.6 billion.[36] Put differently, if AT&T needed to raise, for example, an additional $120 million for investment in broadband and could not borrow—a very implausible story—it could reduce dividends by 1% (*i.e.*, $12 billion times 1% = $120 million). In 2011, the FCC accepted Verizon's claim that access-stimulation payments were between $330 and $440 million.[37]

[34] Connectiv Solutions, The Impact of Traffic Pumping: Industry Study (https://prodnet.www.neca.org/publicationsdocs/wwpdf/71210connectiv.pdf); Businesswire, Traffic Pumping Cost Wireless Carriers More than $150 Million in 2010: Practice Estimated to Increase to $170 Million in 2011, March 31, 2011 (https://www.businesswire.com/news/home/20110331005857/en/Traffic-Pumping-Cost-Wireless-Carriers-150-Million) ("Calls terminating to carriers meeting a traffic pumping profile cost Connectiv Solutions' clients $77 million in 2010. Extending to all wireless service providers, the cost is estimated to be more than $154 million for 2010, with this figure no doubt increasing if wireline service providers were included. Initially estimated at approximately $190 million annually, the actual figure was less following clients reducing their exposure to identified traffic pumpers. By re-negotiating long distance contracts following custom studies by Connectiv Solutions, wireless carriers were able to reduce their long distance rates by as much as 70%." Emphasis added). Connectiv Solutions had "been tracking Traffic Pumping for years" prior to the study and it identified just 25 "traffic pumpers" in 2010. Study, op cit., pp. 5, 6.

[35] FCC USF/ICC ¶ 664. Verizon was apparently the source of the $0.330 to $0.440 billion estimate. Letter from Donna Epps, Vice President-Federal Regulatory, Verizon to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-135, p. 1 (October 12, 2010). Verizon put its own cost at $0.066 to $0.088 billion annually. A study by TEOCO and submitted by US Telecom, estimated the five-year cost of access-stimulation at 2.3 billion. TEOCO, Access Stimulation Bleeds CSPs of Billions, p. 5, attached to Letter from Glenn Reynolds, Vice President-Policy, US Telecom, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-135 (October 18, 2010), FCC ¶664.

[36] AT&T 2017 Annual Report, p. 4. AT&T's CEO stated that "[o]ver the past 5 years (2013-2017), AT&T's total investment in the United States, including capital investment and acquisitions of spectrum and wireless operations, was more than $135 billion—more than any other public company." 2017 Annual Report, p. 10

[37] FCC USF/ICC ¶ 664.

Verizon has also increased dividends since 2015, from $2.23/share to $2.335/share. In 2016, Verizon's total dividend payments amounted to $9.3 billion and it paid out $9.5 billion in 2017.[38] Verizon could, if all else fails, raise $120 million by reducing dividends by less than 1.3%, or less than $0.03/share.

Montana's PUC does annual analyses of the capital value of leading telecommunications companies. In 2016 the PUC estimated that capital value—long term debt plus common and preferred equity—of $744 billion for AT&T, General Communications, Sprint-Nextel, T-Mobile, Verizon, U.S. Cellular, and Telephone & Data Systems. Of this, $623.2 billion is attributed to AT&T and Verizon.[39] The study also reports the capital value of cable companies, including Cablevision, CenturyLink, Charter, Cincinnati Bell, Comcast, Consolidated Communications, Crown Media Holdings, FairPoint Communications, Frontier Communications, General Communications, Hawaiian Telcom Holdco and Time-Warner Cable. The capital value is $412.2 billion.[40]

In 2018, Montana's Revenue Department put the value of telecommunications companies at $1,246.3 billion.[41] The listed companies included telcos and cable providers: AT&T, CenturyLink, Cincinnati Bell, Charter Communications, Consolidated Communications, Frontier Communications, Shenandoah Telecommunications, Sprint, Telephone & Data, T-Mobile, U.S. Cellular, Verizon, and Windstream Holdings. Again, the bulk of the value ($815.7 billion) is attributed to AT&T and Verizon. Montana also provides an estimate, apparently based on Value Line, of earnings growth for the listed providers. The earnings growth ranges from 3.2% per year to 7.98% per year.[42]

At some point any access-stimulation issue linked to the size of intercompany transfers becomes too small to warrant additional extensive regulatory intervention. We appear to be well past that point given the significant rate reductions that have occurred since 2011. In addition, if the size of the problem is small, plausible claims made about the benefits from further regulatory activity would appear to be modest. Finally, if fees have dropped and the size of transfers has dropped as well, that would (a) support the basis for the FCC's 2016 non-dominance finding and (b) put to rest claims that LECs have simply evaded the 2011 Order (a finding of evasion of the 2011 Order would, naturally, undermine the basis for the 2016 non-dominance opinion).

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[38] Verizon, 2017 Annual Report, p. 32

[39] Montana Department of Revenue, 2016 Capitalization Rate Study, Telecommunications, Revised April 14, 2016, T-12. A number of states perform this kind of study related to both rate-making and taxation.

[40] Montana 2016, op. cit., T-13.

[41] Montana Department of Revenue, 2018 Capitalization Rate Study, Telecommunications, April 20, 2018, p. Tel-4. (https://mtrevenue.gov/wp-content/uploads/2018/04/2018-Capitalization-Rate-Study-Complete-Report.pdf). The value of long-term debt is estimated at $467.2 billion or roughly 1/3rd of the total market value of invested capital. Missouri also conducts a cost-of-capital study of the telecommunications sector. State Tax Commission of Missouri, Cost of Capital Study, January 1, 2018 (https://stc.mo.gov/wp-content/uploads/sites/5/2017/04/2018-Telecommunications-Industry-Staff-Cap-Rate-Study.pdf). The Missouri study includes a larger set of telcos than does Montana. Missouri reports a return-on-equity for the telcos that averages 13.69% with a median value of 7.29%. The ROE for AT&T is 13.38% and the ROE for Verizon Communications is 70.18%. Missouri, op cit., p. 7.

[42] Montana 2018, op cit., Tel-9.

E. The FCC has not presented any evidence linking lower access-stimulation fees to increased broadband investment

The notion that access termination fees paid by IXCs impact broadband investment has no apparent economic basis. First, such a theory requires showing that access fee changes are systematically related to broadband investment. Increasing any firm's net income (or profit) does not guarantee how the firm uses the additional cash: it could spend it on business-expanding investments, it could pay out higher dividends, it could raise executive compensation, etc. For example, between 2015 and 2017, AT&T's free-cash flow increased $1.7 billion, from $15.9 to $17.6 billion and its paid-out dividends increased by $1.8 billion, from $10.2 to $12.0 billion.[43] In its most recent annual report, AT&T notes:

> Over the past 5 years (2013-2017), AT&T's total investment in the United States, including capital investment and acquisitions of spectrum and wireless operations, was more than $135 billion—more than any other public company.
> …
> As for returning cash to our owners, I'm proud to say that our strong cash flows and outlook for the business in 2017 allowed us to raise our quarterly dividend for the 34th consecutive year. Looking ahead, our pending acquisition of Time Warner should only improve our dividend coverage ratio.[44]

F. The FCC has not presented any evidence that broadband investments are being underfunded

Evidence indicates that large sums of capital have already been invested in broadband infrastructure, notwithstanding access termination fees that are alleged too high. By way of example, data indicates that publicly traded broadband providers invested $68.129 billion in 2013, $69.752 billion in 2014, $72.783 billion in 2015 and $72.394 billion in 2016.[45] This sums to $283.058 billion over that 4 year period. Another data source estimates that over the 21 years from 1996-2016 broadband investment has been about $1600 billion. Of the $1600 billion investment in broadband, $1106.7 billion occurred prior to the FCC USF/ICC Rulemaking in 2011, or an average (in nominal, not real, dollars) of $73.8 billion per year. This includes both the internet bubble ending in 2000 as well as two recessions (2001-2002 and 2009-2011). From 2011-2016 investment amounted to $445.9 billion, or $74.3 billion per year (in nominal

[43] AT&T's 2017 Annual Report, p. 10.
[44] AT&T's 2017 Annual Report, p. 10.
[45] S. Derek Turner, It's Working: How the Internet Access and Online Video Markets Are Thriving in the Title II Era, FreePress, May 2017, p. 19 (www.freepress.net/sites/default/files/2018-06/internet-access-and-online-video-markets-are-thriving-in-title-II-era.pdf#page=19). I am not attesting to the accuracy of the FreePress analysis of the data it presents. I reference the FreePress because it is a convenient source of data that is public. Listed firms include Comcast, Charter, Cablevision, Suddenlink, Mediacom, Wide Open West, Cable One, GCI, AT&T, Verizon, CenturyLink, Frontier, Windstream, Cincinnati Bell, TDS (excluding U.S. Cellular), Consolidated Communications, FairPoint, Shenandoah Telecom, Hawaiian Telecom, Alaska Communications Systems, Otelco, Sprint, T-Mobile and U.S. Cellular. The four largest investors, AT&T, Verizon, Sprint and T-Mobile, account for $97 billion in 2013-2014 and $99 billion in 2015-2016.

dollars).[46] US firms invested $258/capita on broadband between 1997 and 2013 compared to an average investment in OECD countries (including the US) of $157/capita.[47] I summarize these data in **Exhibit 4**.

AT&T, for example, has invested more than $200 billion in its networks over the past decade.[48] According to AT&T, if there was a barrier to investment in broadband, it was the FCC's 2015 decision to regulate the Internet. According to Stephenson:

> "It's been a long time since we have seen a shift in public policy that was more positive for growth in investment, jobs and wages.
>
> "It began with a broad, sweeping rationalization of the regulatory burden on U.S. businesses, particularly in our industry. The most notable example came last December when the FCC reversed its 2015 decision to impose a set of archaic, 1930s-era regulations – rules created for the rotary-dial telephone – on how the internet works.
>
> "The new FCC order returns internet service to the light-touch regulation that had been in place until 2015. We now have the same regulatory approach that enabled the U.S. technology sector in Silicon Valley to lead the world in innovation as the internet flourished, thanks to massive investments in mobile and fiber-based broadband infrastructure. Indeed, AT&T invested more than $200 billion in capital in our U.S. networks over the past 10 years. Returning the industry to that same light-touch regulation will help ensure continued investment in new, significantly higher-speed network technologies – such as 5G – that will help the United States to remain the global leader in advanced connectivity and digital innovation."[49]

In 2017, Verizon's capital investment alone amounted to $17.2 billion.[50] Elsewhere, Verizon indicated that it use of cash-flow in investing activities amounted to $19.372 billion in 2017, $10.983 billion in 2016 and $30.043 billion in 2015.[51] Of note, nowhere in Verizon's Annual Report does it mention access-stimulation, access fees, termination fees, or traffic pumping. Presumably, if access stimulation was material to Verizon's business it would be part of Verizon's analysis of e.g. business risks. The year-to-year variation in Verizon's investing activities out of cash flow dwarfs access termination fees as reported by Verizon to the FCC in 2011 ($330-$440 million industry-wide).

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[46] Brogan, USTelecom Industry Metrics and Trends 2018, US Telecom, The Broadband Association, March 1, 2018, p. 12. In inflation-adjusted dollars, broadband investment was higher on average from 1996-2010 than from 2011-2016.

[47] Brogan, op cit., p. 23. Two countries invested more per capita, Switzerland ($296/capita) and Australia ($269/capita)

[48] 2017 Annual Report, p. 2, Randall Stephenson Letter to Investors.

[49] 2017 Annual Report, p. 2, Randall Stephenson Letter to Investors (emphasis added).

[50] Verizon, 2017 Annual Report, p. 5

[51] Verizon, 2017 Annual Report, p. 29. The subset, capital investment, was $17.2 billion in 2017 and $17.1 billion in 2016 and capital investment is projected to be $17.0-$17.8 billion in 2018. Capital spending on wireline was $5.339 billion in 2017, $4.504 billion in 2016, and $5.049 billion in 2015. Wireless capital investing makes up the remainder and was $10.310 billion in 2017. Verizon 2017 Annual Report, p. 30.

Verizon touted its 4G LTE network:

> [W]e are already achieving state-of-the-art speed with our blazing-fast nationwide 4G LTE network. We hit the one-gigabit-per-second mark for speed under real-world ecosystems, and yet we've hardly begun to exhaust the potential of 4G technology. This network will remain an extraordinary asset for our company and our customers for many years to come.[52]

Verizon also described the coming 5G technology:

> [W]e are rapidly bolstering our leadership position in 5G. This technology is a game-changer for Verizon as we build the future. It will allow 10 to 100 times better throughput, 10 times longer battery life and 1,000 times larger data volumes than anything offered today.
>
> To give you a sense of 5G's low latency and speed, consider an experiment we conducted at the 2017 Indianapolis 500. We put a driver in a car with blacked-out windows, and only a 5G headcam to use for navigation. The car handled the track with ease. The near-zero latency of the 5G feed enabled the driver to "see" the curves and straightaways as reliably as if the windows had been clear. This is not possible on 4G networks, and 5G's lower latency will enable many more applications that do not exist today.[53]

Nowhere in their Annual Reports do either AT&T or Verizon ascribe adverse effects on investment, rates, or volume stemming from access stimulation or termination fees. Data summarizing certain operating metrics for AT&T and Verizon are reported in **Exhibit 5**.

The FCC's theory here also requires showing that firms with an attractive broadband investment opportunity require retained earnings, rather than some other capital source, to fund it.[54] Capital is, generally speaking, always available for profitable investments. However, if an investment opportunity is not attractive, then no amount of additional cash-flow will induce firms to make money-losing investments.

As an example of how a telecom firm might fund broadband investment, consider the case of CenturyLink. CenturyLink is much smaller than Verizon and AT&T, but it is still a significant player. If CenturyLink needed to raise $100 million and, again, implausibly could not access equity or debt markets, it could reduce its 2018 expected dividend from $2.3 billion to $2.2

[52] Verizon, 2017 Annual Report, p. 5.
[53] Verizon, 2017 Annual Report, p. 5.
[54] Whether firms require retained earnings to fund investment depends upon their ability to access capital markets. Larger public, for instance, firms may be better able to borrow at low rates than smaller private firms such as e.g. rural telephone cooperatives. Thus, there is no evidence that broadband providers need retained earnings to fund attractive broadband opportunities, nor any evidence or economically-sensible explanation why providers would use their own money to fund economically unattractive investments.

billion or by 4.3%.[55] In addition, CenturyLink notes that in 2018 it will have total capital expenditures (exclusive of the cost of integration with Level 3), of $3.8 to $3.9 billion, "inclusive of CAF Phase 2 related capital expenditures".[56] Elsewhere, CenturyLink states that it has used $8.871 billion of net cash for investing in 2017, $2.994 billion in 2016 and $2.853 billion in 2015.[57] The jump in cash for investing by CenturyLink alone between 2016 and 2017 is likely very much larger than total access fees paid related to access stimulation. Data regarding certain of CenturyLink's financial metrics are reported in **Exhibit 6**.

As a final point here, it is not clear what would constitute a reasonable end-point for broadband investment. The FCC has defined "high speed broadband" as a download speed of at least 25 Mbps and an upload speed of at least 3 Mbps. This definition has been criticized as having no real empirical basis.[58] In a sense, as technology improves what is "high speed" can be an endlessly moving or manipulated goalpost—always just out of reach. Whether the FCC's definition is meaningful or not, broadband providers have continued to raise download and upload speeds perhaps making the 25 Mbps/3 Mbps benchmark obsolete. According to Speedtest, in June 2018 average mobile download speed in the U.S. was 27.47 Mbps and average upload speed was 8.52 Mbps. In June 2017 average download was 22.63 Mbps and average upload was 8.12 Mbps. For fixed broadband, average June 2018 download was 93.98 Mbps and average upload was 32.05 Mbps.[59] Furthermore, at the end of 2016, USTelecom estimates that

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[55] See e.g., CenturyLink 2017 10K, pp. 50, 59, 71. (CenturyLink projects dividends for 2018 at $2.3 billion.)

[56] CenturyLink 2017 10K, p. 71. CenturyLink receives USF and CAF funding from the FCC:

> We receive federal and state USF support payment subsidies designed to reimburse us for various costs related to certain telecommunications services, including the costs of deploying, maintaining and operating voice and broadband infrastructure in high-cost rural areas where we are not able to fully recover our costs from our customers;
>
> Connect America Fund ("CAF"). We receive federal support payments from both Phase 1 and Phase 2 of the CAF program. The funding from the CAF Phase 2 support program has substantially replaced the funding from the interstate USF program that we previously utilized to support voice services in high-cost rural markets in 33 states.

CenturyLink, 2017 10K, p. 9.

[57] CenturyLink 2017 10K, p. 84.

[58] "2018 Broadband Deployment Report," FCC website (https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report). See also Dissent by Judge Williams in United States Telecom Association, et al. v Federal Communications Commission, June 14, 2016 (Dissent p. 14) (https://www.cadc.uscourts.gov/internet/opinions.nsf/3F95E49183E6F8AF85257FD200505A3A/$file/15-1063-1619173.pdf) ("The Commission emphasizes how few people have access to 25 Mbps, but that criterion is not grounded in any economic analysis. For example, Netflix—a service that demands high speeds—recommends only 5 Mbps for its high-definition quality service and 3 Mbps for its standard definition quality. Netflix, Internet Connection Speed Recommendations, https://help.netflix.com/en/node/306. A likely explanation for why there has not been more rollout of higher speeds is that many people are reluctant to pay the extra price for it. Indeed, the 2015 Broadband Report indicates that fewer than 30% of customers for whom 25 Mbps broadband is available actually order it. (FCC, In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, February 4, 2015, p. 55).

[59] Speedtest, United States June 2018 Mobile and Fixed Broadband (http://www.speedtest.net/global-index/united-states, accessed July 10, 2018). Speedtest is a crowdsourcing application where data "comes from hundreds of millions of tests taken by real people using Speedtest every month." Speedtest, About

96% of households have at least 3 LTE Broadband choices and that 90% have at least 2 fixed broadband choices. The percentage of households with 1 or no wireless choice is 1.4% and it is 10% for fixed broadband.[60]

Perhaps in light of the extensive development of broadband infrastructure that has already occurred, the rate of new broadband investment also appears to have slowed down. From 2008-2011, high-speed broadband increased by 15.8%, compared to 11.4% from 2011-2015. The number of fixed broadband connections also shows no increasing trend after 2011. I present this data in **Exhibit 7**.

III. Possible Unintended Consequences and Other Issues with the Proposed Reforms

Without any analysis of the proposed reforms, the FCC cannot know how its proposed reforms might otherwise affect the marketplace and whether those reforms could have unintended, adverse consequences. As an example, the proposed reforms would likely have an adverse effect on free conference calling services. As another example, the proposed reforms could also chill other forms of investment as well as risk deterring new entry into certain regions that might otherwise have price-disciplining effects. In addition, under certain plausible conditions the effect of intercarrier payments may be largely irrelevant to what customers pay.

A. Free conference calling could be adversely affected by the proposed reforms

In 2011, the FCC was opposed to the supply of "free" conference calling services as a distortion of the market.[61] However, conference-calling is not, by itself, a service anyone wants. The service is the combination of a conference-calling center plus telecommunications services that may, but need not, include long-distance (IXCs) together with originating and terminating LECs or broadband providers (VoIP). The customer cares about the total cost of the various components that together provide a conference call. As a simplified example:

1.0 Conference Call Cost (CCC) = Origination Cost (OC) + IXC Cost + Termination Cost (TC) + Conference Service Cost (CSC).

The overall conference-call bundle is economically profitable when the price for conference calling, P, exceeds CCC.[62]

(http://www.speedtest.net/global-index/about). According to its website, "Speedtest leverages a vast testing infrastructure with over 7,000 servers in more than 190 countries." Data by country is only reported if there are at least 3,333 unique user test results for fixed broadband and 670 unique results for mobile broadband each month. (http://www.speedtest.net/global-index/about).

[60] Brogan, op cit., p. 13.

[61] USF/ICC ¶665 ("Access stimulation also harm competition by giving companies that offer a 'free' calling service a competitive advantage over companies that charge their customers for the service. … As a result, the services offered by 'free' conferencing providers that leverage arbitrage opportunities put companies that recover the cost of services from their customers at a distinct competitive disadvantage.")

[62] Telephone call-economics is akin to the production of a joint product. The (expected) value of a telephone call is the (expected) value to the originator plus the (expected) value to the recipient. As the FTC's Do Not Call List, with 126 million registered consumers in 2006, makes clear, there is no reason to believe that the (expected) value of call

Because the inputs into the conference call are (strict) complements, there is an incentive for integration. The major IXCs all have internal conference call businesses for example and these IXCs are also integrated with ILECs/CLECs throughout the country.[63] Integrated telecommunications providers can elect how to price the various components of the Conference Call to realize profits. A standard analysis of a firm that supplies an input into various end uses shows that the supplier may find it profitable to integrate in order to effectively price discriminate.[64] Otherwise independent companies may also write contracts to better align their incentives and achieve the efficiencies of integrated (by ownership) rivals. That appears to be

origination is the same as the (expected) value of call receipt. Many studies of telephone economics appear to assume either symmetry in value for called and called parties or that call recipients place a significantly positive value on inbound traffic. Companies like Verizon sell services that allow customers to reduce the volume of incoming calls. Verizon, Stop unwanted calls (https://www.verizon.com/support/residential/homephone/calling-features/stop-unwanted-calls). The FierceWireless Robocall Index (which relies on YouCall for source data) reported robocalls by IXC for March and February 2018. Robocalls for all IXCs were up between 10% and 21% month-over-month. AT&T's network had a reported 15.1 robocalls per AT&T-user during the month, followed by T-Mobile with 14.8/user. This rate amounts to billions of unwanted calls each year. FierceWireless, AT&T leads in robocalls with 15.1 calls per customer in March (https://www.fiercewireless/com/wireless/at-t-leads-robocalls-15-1-calls-per-customer-march, accessed July 10, 2018). As of June 2018, FierceWireless reports 4.1 billion robocalls nationally or 12.7 calls per U.S. resident. FierceWireless, June 2018 Nationwide Robocall Data (https://robocallindex.com/2018/june, accessed July 10, 2018). The FCC is certainly aware of the problem and AT&T claims to have blocked 3.5 billion suspected robocalls on its network alone. "AT&T Leads in Robocalls with 15.1 Calls per Customer in March," FierceWireless (https://www.fiercewireless.com/wireless/at-t-leads-robocalls-15-1-calls-per-customer-march). An across-the-board policy that shifts the cost of calling for every call from the calling to the called party may have the unintended consequence of leading to more outbound robocalls—stimulating outbound call traffic—by potentially reducing the cost of these calls.

In the context of joint products where demands are summed vertically, it is entirely possible that the optimal division of the cost of a call puts the entire burden on the calling party. If the marginal value of incoming calls is negative, as is suggested when subscribers are willing to pay for services that block incoming calls, the optimal price to the calling party may exceed the cost of the call because of the negative externality. One consequence of shifting costs from calling to receiving parties may be to encourage more robo-calls by making them less expensive. The same result may also arise through telecommunications' companies "all-you-can-eat" calling plans. The relationship between call-cost assignment and the number of unwanted calls should be analyzed in order to fully understand the consumer welfare consequence of the FCC 2011 Rulemaking.

[63] The 1984 AT&T Divestiture was partly undone when AT&T was acquired by one of the largest RBOCs, Southwestern Bell (SBC). Another long-distance carrier, MCI Worldcom (now d/b/a Verizon Business), was acquired by Verizon (formerly Bell Atlantic and GTE) out of bankruptcy (announced in 2005, closed in 2006) following the 1997 MCI/Worldcom merger. See "Verizon Closes Book on MCI Merger," CNET, January 6, 2006 (https://www.cnet.com/news/verizon-closes-book-on-mci-merger/).

[64] Richard Romano, A Note on Vertical Integration: Price Discrimination and Successive Monopoly, Economica, May 1988: 261-268; Dennis Carlton & Jeffrey Perloff, Price Discrimination, Vertical Integration and Divestiture in Natural Resource Markets, Resources and Energy, 1981 (http://faculty.chicagobooth.edu/dennis.carlton/research/pdfs/PriceDiscrimination.pdf). When demands differ across downstream products into which the common input goes, a seller with some market power can either overtly price discriminate in order to maximize the value of the input or it can integrate downstream into e.g. conference calling. The supplier then in effect sets a low(er) price to the customers with elastic demands (which may be an internal transfer price) and a higher price (which may be an internal transfer price) to customers with inelastic demands. If the common input is competitively supplied, each competitive input supplier has an incentive to find uses for the input that are unique and not competitively supplied. The successful finder then has an incentive to try to prevent entry/competition—if it can.

what companies like FreeConferenceCall.com, for example, have done by signing revenue-sharing agreements with LECs.[65]

A thorough analysis of the consequences of the FCC's 2011 Order would also investigate the impact, if any, on conference-calling rates before and after 2007 when the FCC began addressing intercarrier compensation disputes related to access stimulation.

An article by Pearce and Barrett claimed, in 2010, that the regulatory dispute raised by integrated IXC/conference call companies was that they did not like the competition from entrants using a different business model because the entry resulted in lower conference-call rates and lower margins for incumbents. According to those authors:

> The IXCs' position as to the profitability of calls made to free conference calling services necessarily implies that there is another motive behind the IXCs' attacks on free conference calling services. This report searches for and uncovers the IXCs' hidden motive, which stems from the fact that many IXCs have had to reduce the price of their own conference calling services and have had to develop and introduce new services in response to new entrants in the market. Generally, this is exactly how the competitive market should work; new entrants launch new, more innovative services in what has been an entrenched market dominated by a few large companies, thereby spurring competition and driving down prices.[66]

B. The proposed reforms might chill other forms of business and/or community investment

The FCC has linked its ICC regulations and its universal service policies (Connect America Fund and Mobility Fund). There have been complaints that the high-cost Universal Service Fund (USF) has had budget shortfalls and the expansion of service in non-served or under-served high-cost areas may be hurt by any further changes (reductions) in intercarrier compensation. I respectfully urge the Commission to carefully and empirically evaluate the impact(s) of the 2011 Order as subsequently clarified through its own independent evaluation before undertaking further changes. Recently, NTCA—the rural broadband association—and WTA—advocates for rural broadband—filed the following with the FCC:

> Significantly, the instant "refresh the record" Public Notice comes at a time when rural carriers are already finding it difficult to fund new investments in enhanced and expanded services due to declining demand for traditional telephone service,

[65] Direct Testimony of David Erickson on Behalf of Native American Telecom, LLC, before the Public Utilities Commission of South Dakota, In the Matter of the Application of Native American Telecom, LLC for a Certificate of Authority to Provide Local Exchange Service Within the Study Area of Midstate Communications, Inc., April 20, 2012.

[66] Alan Pearce and W. Brian Barrett, The Economic Impact of Free Conference Calling Services, Media Law & Policy, Vol. 19.2, Fall 2010, p. 203 (footnotes omitted) (http://www.nyls.edu/documents/media_center/archives/19-2-confernce-calls-final.pdf).

> the Commission's prior ICC reforms, and the high-cost support budget shortfall. RLEC budgets are already strained beneath the Commission's existing high-cost support budget cap and prior ICC reforms. Indeed, in recent months it has become increasingly apparent that shortfalls caused by various USF budget mechanisms are endangering the Commission's broadband goals and rural America's chances of bridging the digital divide.[67]

Similarly, LeRoy Carlson, Jr., Chairman US Cellular, testified before the House Energy and Commerce Committee in March 2017:

> Given the explosive growth in demand for mobile broadband and the large amount of work yet to be done, the FCC's proposed $450 million dollar universal service investment in mobile technology, which is only 10% of its $4.5 billion dollar annual investment in wireline technology, is inadequate. As shown in the FCC's Mobility Phase I auction results map, $300 million doesn't go very far in rural areas. To illustrate, we have gone to extraordinary lengths to build towers in remote areas using federal universal service support. Attached as Exhibit 1 are photographs of cell sites in Washington and Wisconsin, showing the construction of roads, clearing of forest, and even the use of work horses to transport equipment.
>
> We conclude that the FCC's budget comes up far short of what's needed to make a significant portion of rural America's mobile broadband capability reasonably comparable to urban areas.[68]

According to the FCC:

> Several parties claim that access stimulation offers economic development benefits, including the expansion of broadband services to rural communities and tribal lands. Although expanding broadband services in rural and Tribal lands is important, we agree with other commenters that how access revenues are used is not relevant in determining whether switched access rates are just and reasonable in accordance with section 201(b). … Moreover, Congress created an explicit universal service fund to spur investment and deployment in rural, high cost, and insular areas, and the Commission is taking action here and in other proceedings to facilitate such deployment.[69]

The FCC's position is inconsistent. On the one hand, major IXCs are deemed victims of access stimulation because, allegedly, they will not have resources to expand broadband service to

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[67] FCC, In the Matter of Connect America Fund, Developing a Unified Intercarrier Compensation Regime, Dockets WC 10-90 and CC 01-92, October 26, 2017.
[68] Written Statement of LeRoy T. Carlson, Jr. before the Subcommittee on Communications and Technology, U.S. House of Representatives Energy and Commerce Committee, "Broadband: Deploying America's 21st Century Infrastructure", March 21, 2017 (https://docs.house.gov/meetings/IF/IF16/20170321/105740/HHRG-115-IF16-Wstate-CarlsonL-20170321.pdf), pp. 18-19 (footnote omitted).
[69] USF/ICC, ¶ 666.

someone, somewhere. Yet at the same time, small rural and Tribal phone companies using access stimulation funds to expand broadband service is irrelevant to the FCC, even as the FCC admits that broadband development in rural and Tribal areas "is important". Nowhere in the FCC's USF/ICC Order does the FCC deny that rural and Tribal phone companies use access fees for investment in broadband and other services.

C. Under plausible conditions the effect of intercarrier payments are largely irrelevant to what customers pay

A stylized description of the markets for telecommunications services and conference call services is as follows:

- Firms in the conference calling business are free to locate (and relocate) in any ILEC or CLEC territory (and ILECs or their affiliated IXCs are free to integrate into conference calling).
- ILECs/CLECs compete for the right to provide local service to a conference call service.
- There are many[70] IXCs able to serve both the called-from and the called-to areas.
- There are many competitors from which businesses, government, or non-profits can choose conference calling services.
- Long distance pricing is de-tariffed.[71, 72]

[70] How "many" is enough to generate a very competitive outcome may be relatively small. Charissa Welford, Horizontal Mergers: Concentration and Performance, in Takeovers and Horizontal Mergers: Policy and Performance, PhD Dissertation, Department of Economics, University of Arizona, 1990 (three firms enough to obtain competitive outcome); Steffan Huck, Hans-Theo Normann, & Jorg Oechssler, Two are few and four are many: number effects in experimental oligopolies, J. of Econ. Behavior & Organization, 2004: 435-446 (four firms enough to obtain competitive outcome).

[71] The FCC detariffed long-distance service in 2001. At the time of the detariffing, K. Dane Snowden, Chief of the FCC's Consumer Information Bureau, stated: "The FCC has applied minimal regulation to long distance rates in recent years and has allowed the marketplace to regulate these rates. Long distance prices have never been lower, choices have never been greater. This marketplace is serving consumers very well." FCC, Detariffing of Long Distance Telephone Industry to Become Effective at the End of the Month, July 25, 2001.

[72] With detariffed rates, long-distance companies were free to write private contracts with customers subject, as the FCC wrote at the time, "to the same contract and consumer protection laws as any other agreement." See FCC, Detariffing of Long Distance Telephone Industry to Become Effective at the End of the Month, July 25, 2001. However, in 2007 the FCC evidently prevented long-distance companies, still viewed as common carriers, from blocking or threatening to block calls to specific numbers and required call delivery to numbers on a non-discriminatory basis. FCC Declaratory Ruling and Order, In the Matter of Establishing Just and Reasonable Rates for Local Exchange Carriers, Call Blocking by Carriers, June 28, 2007 (https://docs.fcc.gov/public/attachments/DA-07-2863A1.pdf). Later, Google, which offered a "free" VoIP calling service, blocked calls to about 100 numbers nationwide. Letter to Sharon E. Gillett, Chief, Wireline Competition Bureau, FCC from Richard S. Whitt, Esq., Telecom and Media Counsel, Google, October 28, 2009 (https://transition.fcc.gov/wcb/archives/googleletter.pdf). AT&T filed a complaint with the FCC in 2009 about the practice and sought to have Google and other VoIP providers treated, under a net neutrality theory, as common carriers rather than as applications providers. Letter to Sharon E. Gillett, Chief, Wireline Competition Bureau, FCC from Robert W. Quinn, Senior Vice President, Federal Regulatory, AT&T, October 14, 2009 (https://www.att.com/Common/about_us/public_policy/ATTLetter_FCC_Google_VoiceOct14_09.pdf).

With competition at all levels, the ability of firms to extract excess access fees becomes difficult.[73] To see this, start with the free conference calling company. This company competes with other free and non-free rivals to attract customers that find various forms of conferencing attractive. To compete successfully, the price and non-price terms must be competitive. On the price side that means a rate that matches the rate offered by rivals. If rivals offer zero-priced (no administrative fee) calling, then others must do something similar (or offer a superior service that makes paying a fee worthwhile). The conference calling companies make decisions about where to locate based on offers from LECs. The LECs do and can compete for large call-volume businesses. Insofar as the calls involve long-distance providers, IXCs, the successful LECs may collect a fee that exceeds the cost of termination from the IXC that, according to the access-stimulation story, is passed on to the Calling Company. In turn, the IXC bills its customer according to the customer's Calling Plan.

Now, suppose access fees are regulated to $0.00. The IXC payment drops to $0.00—assuming IXCs compete with one another, otherwise whether the IXC fee does or does not drop to zero depends upon pass-through rates that are determined in part by the shape of IXC-demand. The LECs pay less to the conference calling companies and the conference calling companies re-impose administrative fees on their customers. Nothing in this description suggests that the total cost of conference-calling, to those making conference calls, changes: the caller sees a reduction in the long-distance bill, but an offsetting increase in the cost of the conference call service component of the conference call.[74] Unless the total cost of the conference call, and not merely the cost of the long-distance element, changes, there will be no change in the number of conference calls, either. This is why it is very important for the FCC not only to collect updated data on access fees, but also on conference calling minutes, conference calling service fees, and their distribution across providers, including both free and host-paid services offered by the IXC affiliates.

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[73] Naturally, if the markets are deemed competitive—wireline competes with mobile, eliminating the need for access to the "last mile" copper (or fiber) loop—then a good deal of regulation could be eliminated. Market power is not required for two-part tariffs to be used by rivals. Beth Hayes, Competition in Two-Part Tariffs, J. of Business, January 1987: 41-54 (two-part tariffs arise when consumers are risk-averse). Two-part tariffs can also arise in monopolistically competitive markets or markets where products are not homogeneous but entry is free. Nicholas Economides & Steven Wildman, Monopolistic Competition with Two-Part Tariffs, NYU Working Paper EC-95-10, July 2005 (http://www.stern.nyu.edu/networks/Economides_Wildman_Monopolistic_Competition_with_Two-Part_Tariffs.pdf). Griva & Vettas analyze duopoly competition in two-part tariffs with homogeneous products but customers with differing levels of demand. Krina Griva & Nikolaos Vettas, On two-part tariff competition in a homogeneous product duopoly, Internat'l J. of Industrial Org., July 2015: 30-41. In this model, customers with high demand for the good prefer a firm that charges a low per-unit fee and a high access (fixed) fee, while low-demand customers prefer a high per unit fee and a low access (fixed) fee. Competing firms sort customers by intensity of use in this model, just as a single firm that can offer a menu of contracts to heterogeneous customers might do. See e.g., Shmuel S. Oren, Stephen A. Smith & Robert B. Wilson, Competitive Nonlinear Tariffs, J. of Econ. Theory, 1983: 49-71. Miravete asks whether all the calling plans are actually necessary or whether firms without complex menus would lose much money and concludes they would not. Eugenio Miravete, Are all those Calling Plans Really Necessary? The Limited Gains from Complex Tariffs, University of Pennsylvania Working Paper, January 21, 2004 (ftp://ftp.cemfi.es/pdf/papers/wshop/EJM-Gains.PDF).

[74] The same analysis applies to other access-stimulation businesses as well. The customer's cost may actually rise because it now gets a separate bill from the conference call company that requires some time and attention. Arranging for "no-reservation" immediate conference calling may also become more difficult.

But is there competition among providers of the components of a conference call? Major legacy local wireline carriers such as Verizon contend that they compete with a variety of alternatives including CLECs, mobile telecommunications services, cable companies, VoIP providers, etc.[75]

Some rural or small urban CLECs or LECs provide service to firms painted with the epithets "access stimulator" or "traffic pumper" as well as to typical residential and business users whose economic activities are not linked so directly to telecommunications call-volume. How competing successfully for a call-center, a conference-call business, or other entity that generates significant incoming (or outgoing) call volume affects a CLEC or LEC's other customers depends in part on whether and how the LEC's rates are regulated.

Also, there are many conference calling services, including Vast Conference (rated #1 by business.com), FreeConferenceCall.com (best free conference call service by business.com), RingCentral (best within a phone system), Cisco WebEx (best for remote wireless workforces), 8x8, Nextiva, Grasshopper, Avaya, ClickMeeting, GlobalMeet, ReadyTalk, Infinite Conferencing, InterCall, Zip Conferencing, FreeConference.com, Join.Me, PGI, UberConference, AT Conference and others.[76] In addition, affiliates of the IXCs also offer conference calling via the ubiquitous 800 number (AT&T, Verizon, Optimum, TimeWarner, etc.). These companies compete on price, sound quality, the number of allowed participants, whether conference calling does or does not require a prior reservation, security, and how the calling system interfaces with computer programs like e.g. Microsoft Outlook to facilitate sending invitations and receiving responses. In the past, long-distance carriers that also offer conference calling services have blocked access to "free" services.[77] In the past, IXCs have

[75] For example, see State of New Jersey Board of Public Utilities, In the Matter of the Board Investigation Regarding the Reclassification of Incumbent Local Exchange Carrier (ILEC) Services as Competitive—Phase II, Docket No. TX11090570, 2017 ("The Board agrees with Verizon that: 'There is an array of both traditional and non-traditional competitors vigorously competing for Verizon's legacy landline and residential DA services.'" VNJ IB at 6. Also, Verizon specifically points out that the RC [Rate Counsel] witness acknowledged wireless carriers, cable companies, VoIP providers, and CLECs are present in New Jersey. Id. at 6. Verizon posits that carriers now serve over 50% of the lines. Id. The record lists numerous competitors, including wireless, cable, Magic Jack, Skype, and others. VNJ IB at 10; VNJ DT at 19-32. … Therefore, evidence presented in this proceeding as to the presence of competitors in the market provides sufficient information to satisfy the criterion for reclassification" (pp. 28-29). The Board also noted that "Evidence of ease of market entry exists as proven by cable telephony competition, the numerous wireless providers, the availability of VoIP, the countless number of CLECs operating in the state along with the various DA services offered" (p. 28).) Many of the service alternatives to legacy landline/wireline carriers listed by Verizon in New Jersey operate in many other states. New Jersey's reclassification of (a) residential basic exchange service, (b) single line business basic exchange service, (c) non-recurring charges for installation of residential services, and (d) residential directory assistance as "competitive" occurred 6 years after the 2011 FCC Order. This suggests at least that merely assuming that local exchanges have market or monopoly power is no longer warranted as the basis for a policy position. Whether local exchanges do or do not have monopoly power in any meaningful sense should be fact-based regarding the specific local exchanges involved in a specific rate dispute. It would apparently be difficult to support a finding of local exchange market power in New Jersey, as one example.

[76] The so-called "free" services may include a requirement that conference participants hear advertising messages. Chad Brooks, FreeConferenceCall.Com Review, June 6, 2018 (https://www.business.com/reviews/freeconferencecall-com/

[77] Martin H. Bosworth, AT&T; Blocks Calls to Competing Conference Call Service: Telecom Giants Use Their Power to Stifle Competition at All Levels, Consumer Affairs

engaged in "self-help" refusing to pay LECs for call termination and have sued repeatedly to overturn LEC tariffs.

D. The FCC's 2011 Order appears to have disproportionately benefited large ILECs

The present NPRM appears, in part, to question linkages between typically small rural telephone companies and long-distance centralized equal access (CEA) call-aggregators like Iowa Network Service, Inc., Minnesota Independent Equal Access Corporation (MIEAC),[78] and South Dakota Network LLC.[79] The issue here is apparently whether or not rural telephone LECs requirement that IXCs provide call termination to the CEA's central switch rather than have a dedicated direct connection to the LEC is problematic. To this point, the FCC has not provided evidence that rural LECs as a general rule benefit from requiring connections to the CEA switch in today's access market.[80] However, insofar as the CEA is rate-regulated an increase in CEA traffic should push down the allowed CEA rate under rate-of-return regulation.[81] More traffic, then, benefits all of the users of the CEA's regulated service, whether they are engaged in access stimulation or not. Regulatory requirements that would undermine CEAs, harming their members and

(https://www.consumeraffairs.com/news04/2007/03/freeconference.html) ("Users of FreeConference.com, a Web-based service that offers long-distance conference calling for the price of a single long-distance call, found itself cut off last week, as AT&T/Cingular, Sprint, and Qwest began blocking subscriber access to the service."). At the time, the call-blocking generated negative publicity for the long distance carriers as the service "has been popular with not-profits and small businesses that have employees in multiple states." AT&T sued FuturePhone, another "free" conference calling company and Qwest sued both FreeConference.com and FuturePhone. "AT&T, Qwest block calls, file lawsuits in battle with LECs," RCR Wireless News, (https://www.rcrwireless.com/20070320/carriers/at-t-qwest-block-calls-file-lawsuits-in-battle-with-lecs).

[78] MIEAC is a subsidiary on Onvoy, Inc. The 3 CEAs have operated in more than one state. MIEAC, for example, has operated in Minnesota and North Dakota. MIEAC, Centralized Equal Access Service, North Dakota Tariff (https://www.inteliquent.com/getmedia/5f1dffba-d74f-4585-8ac8-10b8fb5a78cc/MIEAC_ND_Tariff.pdf.aspx?ext=.pdf).

[79] The motivation for CEAs initially was to increase competition between IXCs following the 1984 AT&T break-up. Small rural telephone exchanges had, they believed, too little volume to induce entrant IXCs to build out facilities in the face of incumbent IXCs with already sunk assets. By combining volume at a single point of contact, the rural telephone exchanges made it much more attractive for IXCs to put in connection facilities, thus bringing the benefits of inter-IXC competition to the LECs' customers. It is in a way peculiar that today IXCs want, in effect, to circumvent CEAs by cherry-picking high-volume LECs for direct connection where the consequence will be a higher CEA-rate for the remaining "not picked" LECs' customers.

[80] Suppose a LEC required connection to the CEA switch. Suppose the CEA's bill-for-service include the switch and the fiber-optic or other connection to the LEC's facility. This is apparently the way Iowa Network Services (aka Aureon) bills for service. The CEA bills for both switching and transport. Suppose the LEC attempted to bill for its own switching service, but also included a bill for transport from the CEA. The IXC would be billed twice for the same transportation service—CEA switch to LEC switch. If this occurs, normal commercial litigation should resolve the double-billing dispute.

[81] If the price cap is set once and for all time, then changes in volume or cost-of-service can have no impact on the truly "fixed" price. But typical regulation does have openings for renegotiating the regulatory bargain to take account of changed circumstances. If higher volume does not require additional capital investment the higher volume at a price above incremental cost generates higher income for the provider and may lead to a decision to lower the ceiling price. The relationship between volume and price is more direct for rate-of-return regulation. As to CEA rates and volume, see Iowa Network Services, Inc.'s Reply Comments In the Matter of Petition of AT&T Services, Inc. for Forbearance Under 47 U.S.C. 160(c) From Enforcement of Certain Rules for Switched Access Services and Toll Free Database Dip Charges, Docket WC 16-363, p. 2 ("Aureon's CEA rate, which decreases as traffic volume increases…").

customers in the process, could well benefit large, integrated IXC/ILECs or ILECs large enough to generate competitive long-distance services without participating in the CEA.

The data tell another story, too. The FCC rules for determining access stimulation favors large LECs over small ones. The rules require (a) a contract between the LEC and a telecommunications-using firm, (b) a ratio of terminating to originating calls in any month greater than 3/1, or (c) a more than 100% growth in call volume. Any business that benefits from inbound calls that is of any size locating in the service area of a small telephone company is likely to earn the access stimulation appellation for its LEC. But if the same company locates in the territory of a large LEC this is much less likely to occur. Moreover, if the large LEC also induces a call-originating company e.g. a robo-caller to locate in its territory it may balance call volume so that the 3/1 terminated/originated call-criterion is never violated. But if the LEC is large enough and relatively balance it may not need to do that. In 2011 for Pacific Bell to violate the 100% growth rule an access-stimulating company would have needed to generate 17.8 billion minutes of use. If Pacific Bell's call-profile was balanced—half originating and half terminating, the access stimulator would need to generate 17.8 billion terminated calls. In 2018, the number of terminated minutes of use to trigger the FCC volume-based rules drops to "only" 4.5 billion.[82] Hence, the same telecommunications-using firm generating the same number of terminated MOUs will or will not subject a LEC to the "access stimulation" rules based largely on the LEC's size. While "big" is certainly not inherently "bad", in this case it is certainly better for the LEC to be large than small.

In addition, large telecommunications companies apparently have a way around mandated reductions in tandem-switching and transport charges.[83] If an integrated carrier terminates traffic at an affiliate that is not itself a price-cap carrier, including the carrier's "affiliated CLEC or wireless end office", rather than at the price-cap carriers end office, then the stepped down tandem-switch or transport charge reduction required in USF/ICC does not apply according to the FCC.

E. Non-CLEC Tariffs Provide Substantial Volume Discounts

Part of the complaint appears to be that access-stimulating businesses obtain refunds or rebates based on volume.[84] Non-CLEC tariffs provide substantial discounts once specified volume

[82] To put some perspective on this, to generate 1 billion MOU during a year a company would need to host more than 2,850 conference calls each day of-the-year that average 8 participants and last on average 2 hours. If the time is limited to weekdays the number of calls daily exceeds 4,000. For a chat-line to generate 1 billion minutes based on single-line termination and a chat lasting 1 hour requires 16.67 million "chats" per year or nearly 46,000 each day.

[83] FCC, In the Matter of Level 3 Communications, LLC v. AT&T, et al., Proceeding No. 17-227, Bureau ID No. EB-17-MD-003, February 12, 2018.

[84] I understand there have been allegations that some access-stimulating businesses paid nothing for telecommunications service. See, e.g., In the Matter of Qwest Communications Corporation v. Farmers and Merchants Mutual Telephone Company, FCC File No. EB-07-MD-001 (Farmers I). Apparently if these customers paid $10.00 in recurring fixed revenue they would have been "customers." This seems to be a regulatory rather than economic issue. Telecommunications providers have historically set multi-part tariffs that, under "all-you-can-eat

thresholds have been met. In the past, CenturyLink has had tariffs with significant volume-related discounts. Its CenturyLink Metro tariff offered a 20% discount when monthly billing exceeded $750.00. The CenturyLink Preferred tariff offered a 20% discount on billings over $1,500/month. [85] Volume-based discounts—e.g., effectively charging larger volume users less per minute used—is not uncommon in telecommunications regulated by the FCC. So-called "all-you-can-eat" telecommunications programs—a two-part tariff with a positive access fee and a zero price per minute—is an extreme example of volume discounting.

F. "Regulatory Capitalism"

The choice given CLECs in 2011 as a result of the Order was, evidently, to end doing business with companies like Freeconferencecalling.com and other businesses that generate significant in-bound calls or to comply with the FCC's post-2011 regulated call termination rate structure. The CLECs in Iowa and South Dakota on behalf of whom these comments are filed to my knowledge chose the latter path.

When firms in most markets have commercial disputes they either resolve them through further negotiation, resolve them through arbitration insofar as contracts require that mode of dispute resolution, or they go to court to seek to enforce the rights and obligations they believe their business relationships, contractual or otherwise, require. Firms operating in regulated industries have another path if the other modes of dispute resolution fail. They can, in some industries, go to various regulatory bodies and use what has been called "regulatory capitalism" [86] to obtain the outcome they want but could not otherwise obtain. This appears to be what AT&T and Verizon are attempting to accomplish in this proceeding.

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plans, have a $0.00 marginal price and it is the marginal price that determines use. The recurring charge determines participation.

[85] CenturyLink Communications, LLC, Rates and Services Schedule Interstate and International No. 1, Effective November 18, 2015 (https://www.centurylink.com/tariffs/fcc_clc_ixc_rss_no_1.pdf). These are now obsolete tariffs but illustrate that more service results in lower fees. In a second tariff, CenturyLink offers a variety of "competitive discount programs." See, Rates and Services Schedule Interstate and International No. 7, Effective November 18, 2015, Section 9 (https://www.centurylink.com/tariffs/fcc_clc_ixc_rss_no_7.pdf). CenturyLink notes that "[t]he Company may offer up to a 60% discount off the customer's monthly recurring interstate long-distance voice and data service charges with a term agreement" and "[t]he Company may waive all or a portion of non-recurring interstate long-distance voice and data service charges." In addition, "[c]ustomers receiving the benefits of this offer may also receive benefits of other promotional offerings offered by the Company and/or a Company affiliate."

[86] D. Levi-Faur, The Global Diffusion of Regulatory Capitalism, Annals of the American Academy of Political and Social Science, 2005.

Exhibit 1
Telecommunications Producer Price Indices

	Base Period	July 2011	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
Bundled Wired Telecom. Access Services [1]	Dec. 2011	n/a	100.0	99.5	100.5	101.2	103.7	105.1
Bundled Access Services [2]	Dec. 2011	n/a	100.0	99.6	100.6	101.3	103.8	105.2
Internet Access Services [3]	March 2009	97.6	97.7	97.6	97.6	98.1	97.6	97.6
Cellular & Other Wireless [4]	March 2009	90.5	89.5	87.9	87.1	82.6	74.2	69.2
Residential Wired [5]	June 2009	106.5	107.9	111.4	118.5	123.6	127.8	133.0
Business Wired [6]	June 2009	96.5	96.1	96.4	96.0	96.1	96.5	95.8

Source:
[1] https://fred.stlouisfed.org/series/WPU375
[2] https://data.bls.gov/timeseries/PCU5173115173117
[3] https://fred.stlousfed.org/series/WPU374
[4] https://fred.stlousfed.org/series/WPU3721
[5] https://fred.stlousfed.org/series/WPU3711
[6] https://fred.stlousfed.org/series/WPU3712

Exhibit 2
Residential Basic Service Rates
As Reported by the California PUC

Flat Rate		2010	2011	2012	2013	2014	2015	2016	2017	2018
	AT&T	$16.45	$19.95	$21.00	$23.00	$24.00	$24.00	$25.00	$26.00	$27.00
	Frontier/Verizon	$19.50	$20.50	$20.50	$20.50	$22.00	$22.00	$22.00	$22.00	$22.00
	Frontier CTC-CA	$17.85	$19.00	$19.00	$19.00	$19.00	$20.00	$20.00	$20.00	$21.00
	Consolidated	$18.90	$19.99	$19.99	$19.99	$19.99	$19.99	$21.99	$21.99	$21.99
Measured Service Rate										
	AT&T	$8.87	$12.37	$15.37	$18.25	$21.25	$21.25	$22.25	$23.25	$24.25
	Frontier/Verizon	$11.80	$12.39	$12.39	$12.39	$13.40	$13.40	$13.40	$13.40	$13.40
	Frontier CTC-CA	$9.60	$13.25	$13.25	$13.25	$13.25	$16.00	$16.00	$16.00	$17.00
	Consolidated	$13.99	$13.99	$13.99	$13.99	$13.99	$13.99	$15.99	$15.99	$15.99

Source: California Public Utilities Commission
(http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Communications_-_Telecommunications_and_Broadband/Service_Provider_Information/Video_Franchising/URFCBSRbY.pdf).

Exhibit 3
Decline in Minutes of Use
2011 to 2017

	2011	2017	Q1 2018	Change ’11 to ‘17
Tier 1	183,873,815,482	71,605,994,009	13,779,154,598	-112,267,821,473
Non-Tier 1	24,667,907,049	11,839,428,432	2,542,669,666	-12,828,478,617
Total	208,541,722,531	83,445,422,441	16,321,824,264	-125,096,300,090
% Non-Tier 1	11.83%	14.19%	15.58%	
Largest Carrier	Pacific Bell	Pacific Bell	Southwestern Bell TX	
	15,292,685,486	5,966,165,251	843,923,033	-9,326,520,235
Carriers > 2 Billion	30	9	0	
Carriers > 1 Billion	47	24	0	

Source: "Common Carrier Line Access Minutes of Use," FCC website (https://www.fcc.gov/general/carrier-common-line-access-minutes-use), specifically MOU11.zip; MOU17.zip; and MOU17-18.zip.

Exhibit 4
U.S. Investments in Broadband
2009-2016 ($ billions)

2009	2010	2011	2012	2013	2014	2015	2016
$64.5	$67.9	$68.0	$69.4	$76.2	$78.4	$77.9	$76.0
				$154.6		$153.9	

Source: Patrick Brogan, USTelecom Industry Metrics and Trends 2018, March 1, 2018, p. 14
(https://www.ustelecom.org/sites/default/files/USTelecom_Industry_Metric%20_and_Trends_2018.pdf)

Exhibit 5
Financial Overview of AT&T and Verizon
2015-2017, ($ million)

	Verizon			AT&T		
	2017	2016	2015	2017	2016	2015
Op. Revenue	$126,034	$125,980	$131,620	$160,546	$163,786	$146,801
Op. Income	$27,414	$27,059	$33,060	$20,949	$24,347	$24,785
Wireless Rev.	$87,511	$89,186	$91,680	$71,349	$72,821	$73,705
Wireless Equip. Rev.	$18,889	$17,515	$16,924	$13,394	$13,435	$13,868
Wireless Cost of Service	$7,990	$7,988	$7,803	N/A	N/A	N/A
Wireless Equip Cost	$22,147	$22,238	$23,119	N/A	N/A	N/A
Wireless SG&A	$18,772	$19,924	$21,805	N/A	N/A	N/A
Wireline Rev.	$30,680	$30,510	$31,150	$17,851	$21,199	$24,460
Wireline Cost of Service	$17,922	$18,353	$18,483	N/A	N/A	N/A
Wireline SG&A	$6,274	$6,476	$7,140	N/A	N/A	N/A
Income Tax	($9,956)	$7,378	$9,865	($14,708)	$6,479	$7,005

Source: Verizon 2017 Annual Report and AT&T 2017 Annual Report. AT&T does not report identifable figures for metrics labeled N/A. AT&T wireline Revenue reported is the sum of Legacy voice and data services for AT&T's Business Solutions and Entertainment Group segments.

Exhibit 6
CenturyLink Financial Metrics
2015-2017 ($ millions)

	2017	2016	2015
Revenue	$16,924	$16,766	$17,171
Income	$7,534	$7,685	$8,146
Margin	45%	46%	47%
Margin on Business Seg.	39%	40%	42%
Margin on Consumer Seg.	55%	56%	58%
Total Assets	$75,611	$47,017	$47,604
Dividends	$1,453	$1,167	$1,198
Source: CenturyLink 2017 10K, pp. 50, 59, 71, 84. CenturyLink projects dividends for 2018 at $2.3 billion.			

Exhibit 7
U.S. Fixed Broadband Connections (millions of high-speed connections)
Year-Over-Year Change and Year-Over-Year Percentage Change
2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017*
Connections (mil.)	76	80	85	88	93	96	98	102	106	109
YoY Change (mil.)	6	4	5	3	5	3	2	4	4	3
YoY Change (%)	8.57%	5.26%	6.25%	3.53%	5.68%	3.23%	2.08%	4.08%	3.92%	2.83%

*Projection for 2017 made by author.
Source: Patrick Brogan, USTelecom Industry Metrics and Trends 2018, March 1, 2018, p. 14
(https://www.ustelecom.org/sites/default/files/USTelecom_Industry_Metric%20_and_Trends_2018.pdf)